



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,672	03/18/2004	Jeffrey D. Earls	7728 US	8016
30078 7590 04/12/2007 MATTHEW D. RABDAU TEKTRONIX, INC. 14150 S.W. KARL BRAUN DRIVE P.O. BOX 500 (50-LAW) BEAVERTON, OR 97077-0001			EXAMINER EJAZ, NAHEED	
			ART UNIT	PAPER NUMBER
			2611	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		04/12/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/804,672

Applicant(s)

EARLS ET AL.

Examiner

Naheed Ejaz

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03/18/2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. Figure 1 should be designated by a legend such as --Prior Art-- (Specification, page # 3, line 1) because only that which is old is illustrated See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance. Correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3 & 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nara (6,356,067) in view of Gumm et al. (6,307,896) (hereinafter, Gumm).

4. As per claim 1, Nara teaches, 'a wideband IF channel having the wideband IF signal as an input to provide wideband signal acquisition data' (figure 2, elements 22 & 24, col.3, lines 31-36), 'a narrowband IF channel having the wideband IF signal as an input simultaneously with the wideband IF channel' (figure 2, elements 10,12 & 14,

Art Unit: 2611

col.3, lines 19-30). Moreover, Nara provides the frequency domain data acquired in the narrow band signal for detecting a trigger function (figure 2, element 32, col.4, lines 43-61) (claimed providing a signal data for a frequency trigger function).

Nara does not provide high dynamic range signal data.

Gumm teaches an instrumentation receiver (figure 7, col.11, lines 4-5) that uses high dynamic range, narrow band signal path 192 in IF signal path (figure 7, col.11, lines 10-21 & 28-30) which reads on claim limitations of providing high dynamic range signal data.

It would have been obvious to one of ordinary skill in the art, at the time invention was made, to implement the teachings of Gumm into Nara in order to provide high dynamic range, narrow band signal path with minimally distorted wideband signal path for providing an IF signal for performing spectrum analyzer type measurements also includes signal quality of digitally modulated radio frequency signals as taught by Gumm (col.1, lines 6-10 & col.12, lines 24-30) thus increase system performance.

5. As per claim 3, Nara discloses, 'the wideband IF channel comprises means for sampling the wideband IF signal at a high sample rate with a relatively low resolution to provide the wideband signal acquisition' (figure 2, elements 22, 24 & 26, col.3, lines 42-53).

6. As per claim 4, Nara uses Wide BPF (figure 2, element 22) (claimed 'anti-aliasing filter') before inputting the wide band IF signal (figure 2, element 24) into FAST ADC (claimed 'sampling means') (figure 2, element 26) (it is noted that an anti-aliasing filter is a filter used before a signal sampler, to restrict the bandwidth of a signal to

Art Unit: 2611

approximately satisfy sampling theorem and Nara's analog to digital conversion (fig.2, element 24) (claimed 'sampling means') uses the sampling theorem in order to provide the digital signal (col.3, lines 42-53) hence reads on claim limitations).

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nara (6,356,067) in view of Gumm et al. (6,307,896), as applied to claim 1 above, and further in view of Limberg (6,301,312).

8. As per claim 2, Nara and Gumm teach all the limitations in the previous claim on which claim 2 depends but they fail to disclose frequency offset. Nara teaches a frequency converter 10 which generates IF signal (figure 2, col.3, lines 12-14 & 42-45) (claimed 'conversion stage') and sample the narrowband IF signal (figure 2, elements 12 & 16, col.3, lines 19-30 & 51-53) (it is noted that the transfer rate of ADC 16 is slower than ADC 26 which reads on claim limitations 'means for sampling the narrowband IF signal at a relatively slow sample rate')

Limberg teaches, 'a conversion stage having the wideband IF signal as an input to provide a frequency offset to the wideband IF signal' (figure 1, elements 11,12,13,14,15 & 16, col.6, lines 53-65) (it is noted in the mentioned columns and lines Limberg is generating wide frequency band offset by using IF signal (claimed 'wideband IF signal as an input to provide a frequency offset to the wideband IF signal').

Furthermore, Limberg generates signal which is narrow in bandwidth after generating frequency offset signal by using bandpass filters 19 & 20 (figure 1, element 19, 20 & 29, col.7, lines 23-31) which reads on claim limitations of 'means for narrowband filtering the frequency offset wideband offset wideband IF signal to produce a narrowband IF

Art Unit: 2611

signal'. Moreover, Limberg sample the narrowband IF signal in order to provide high resolution data with high dynamic range (col.3, lines 10-30).

It would have been obvious to one of ordinary skill in the art, at the time invention was made, to implement the teachings of Limberg into Nara and Gumm in order to control the overall amplitude of the receiver in order to minimize the intersymbol error and at the same time rejecting interference from signal in adjacent channels as taught by Limberg (col.5, lines 56-66) by extracting the narrowband pilot carrier by implementing the circuitry for generating the frequency offset signal and then sampling them (col.6, lines 53-65, col.7, lines 23-35) thus enhance system performance.

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nara (6,356,067) in view of Gumm et al. (6,307,896) (hereinafter, Gumm) and further in view of Ly (6,608,523).

10. As per claim 5, Nara teaches, 'inputting the wideband signal to both a narrowband channel and a wideband channel simultaneously' (figure 2, elements 12 & 22, col.3, lines 12-45), 'sampling the wideband signal output from the wideband channel at a high sample rate with a relatively low resolution to provide wideband signal acquisition data' (figure 2, element 26, col.3, lines 42-51), 'sampling the narrowband signal output from the narrowband channel at a relatively low sample rate with a high resolution' (figure 2, element 16, col.3, lines 45-53).

Nara does not provide high dynamic range signal data.

Gumm teaches an instrumentation receiver (figure 7, col.11, lines 4-5) that uses

Art Unit: 2611

high dynamic range, narrow band signal path 192 in IF signal path (figure 7, col.11, lines 10-21 & 28-30) which reads on claim limitations of providing high dynamic range signal data.

It would have been obvious to one of ordinary skill in the art, at the time invention was made, to implement the teachings of Gumm into Nara in order to provide high dynamic range, narrow band signal path with minimally distorted wideband signal path for providing an IF signal for performing spectrum analyzer type measurements also includes signal quality of digitally modulated radio frequency signals as taught by Gumm (col.1, lines 6-10 & col.12, lines 24-30) thus increase system performance.

Nara and Gumm do not vary a frequency offset in the narrowband channel.

Ly teaches, 'varying a frequency offset in the narrowband channel to cover a desired subsection of the wideband signal' (col.10, lines 9-25), 'narrowband filtering the frequency offset wideband signal to provide a narrowband signal from the wideband signal' (figure 3, element 99, col.11, lines 12-17).

It would have been obvious to one of ordinary skill in the art, at the time invention was made, to implement the teachings of Ly into Nara and Gumm in order to achieve desired performance of the system by varying the frequency offset value and position the channel within the frequency band of operation as taught by Ly (col.11, lines 65-67 & col.12, lines 1-5) thus enhance system performance.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 2611

- Furukawa et al. (6,363,126) teach Demodulator (see figure 1).
- Hanrahan (2004/0204034) discloses tuner (see figure 1).
- Yumoto et al. (4,459,698) teach variable equalizer.
- Chu et al. (7,190,740) disclose arrangement for dynamic DC offset compensation (see figure 4).

***Contact Information***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Naheed Ejaz whose telephone number is 571-272-5947. The examiner can normally be reached on Monday - Friday 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.




Application/Control Number: 10/804,672  
Art Unit: 2611

Page 8

Naheed Ejaz  
Examiner  
Art Unit 2611

N.E.  
4/9/2007

A handwritten signature in black ink, appearing to read "Jay K. Patel", with a long horizontal stroke extending to the left.

JAY K. PATEL  
SUPERVISORY PATENT EXAMINER